

AMENDMENTS TO THE CLAIMS

1. (CURRENTLY AMENDED) A method for generating dopaminergic neurons in vitro comprising the steps of:

- (i) providing pluripotent cells;
- (ii) inhibiting ~~one or more a pathway components~~ component of a TGF- β signaling pathway in said pluripotent cells, wherein said pathway component is Smad4; and
- (iii) overexpressing one or more cell fate-inducing polypeptides in said pluripotent cells.

2. (WITHDRAWN) The method of claim 1, wherein one of said cell fate-inducing polypeptides is Nurr-1.

3. (ORIGINAL) The method of claim 1, wherein one of said cell fate-inducing polypeptides is PTX3.

4. (ORIGINAL) The method of claim 1, wherein said cell fate-inducing polypeptides are Nurr-1 and PTX3.

5. (ORIGINAL) The method of claim 1, wherein said one or more cell fate-inducing polypeptides is overexpressed by:

- (i) providing a polynucleotide encoding said cell fate-inducing polypeptide operably linked to a promoter; and
- (ii) introducing said polynucleotide into said pluripotent cells under conditions suitable for expression of said polynucleotide.

6. (ORIGINAL) The method of claim 1, wherein said pluripotent cells are human pluripotent cells.

7. (WITHDRAWN) The method of claim 1, wherein said pluripotent cells are mouse, rat, porcine, or non-human primate pluripotent cells.

8. (ORIGINAL) The method of claim 6, wherein said pluripotent cells are embryonic stem cells.

9 – 14. (CANCELED).

15. (ORIGINAL) The method of claims 1, wherein said dopaminergic neurons are A9 dopaminergic neurons.

16. (ORIGINAL) The method of claim 1, wherein said pathway component is inhibited by gene knockout of the nucleic acid encoding said component.

17. (WITHDRAWN) The method of claim 1, wherein said pathway component is inhibited by overexpressing small interfering RNA complementary to the mRNA encoding said component in said pluripotent cells.

18. (WITHDRAWN) The method of claim 1, wherein said pathway component is inhibited by overexpressing antisense oligonucleotide of the nucleic acid encoding said component in said pluripotent cells.

19. (WITHDRAWN) The method of claim 1, wherein said pathway component is inhibited by contacting said pluripotent cells with antibodies that specifically bind to said pathway component.

20. (WITHDRAWN) The method of claim 1, wherein said pathway component is inhibited by overexpressing a dominant negative version of said pathway component in said pluripotent cells.

21-46. (CANCELED).